

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the present application:

Listing of Claims

1 1.- 5. **(canceled)**

1 6.-15. **(canceled)**

1 16. (previously amended) A method of operating a receiver to receive an RF
2 signal, the receiver comprises an LNA with continuously variable gain that receives the
3 RF signal and produces an LNA output signal coupled to a VGA, the LNA and VGA
4 have control inputs to receive control signals that set gain factors of the LNA and VGA,
5 respectively, the method comprising steps of:
6 determining that a received power level of the RF signal is varying within a first
7 selected power range;
8 maintaining the gain factor of the VGA; and
9 adjusting the gain factor of the LNA so that a signal-to-noise ratio required for
10 demodulation of the RF signal is met with a selected margin and linearity requirements of
11 the receiver are reduced.

1 17. (original) The method of claim 16, further comprising steps of:
2 determining that the received power level of the RF signal is varying within a
3 second selected power range;
4 maintaining the gain factor of the LNA; and
5 adjusting the gain factor of the VGA so that the signal-to-noise ratio required for
6 demodulation of the RF signal is met.

1 18. **(canceled)**

1 19. (currently amended) ~~The method of claim 18, further comprising steps of:~~ A
2 method of operating a receiver to receive an RF signal, the receiver comprises an
3 LNA with continuously variable gain that receives the RF signal and produces an
4 LNA output signal coupled to a VGA, the LNA and VGA have control inputs to
5 receive control signals that set gain factors of the LNA and VGA, respectively, the
6 method comprising steps of:
7 determining that a received power level of the RF signal is varying within a
8 first selected power range;
9 adjusting the gain factor of the VGA;
10 adjusting the gain factor of the LNA so that a signal-to-noise ratio required
11 for demodulation of the RF signal is met with a selected margin and linearity
12 requirements of the receiver are reduced;
13 determining that the received power level of the RF signal is varying within a
14 second selected power range;
15 maintaining the gain factor of the LNA; and
16 adjusting the gain factor of the VGA so that the signal-to-noise ratio required for
17 demodulation of the RF signal is met.

1 20. (canceled)

1 21. (currently amended) ~~The control network of claim 20, further comprising:~~
2 A radio receiver comprising:
3 a continuously variable gain low noise amplifier (LNA) coupled to a
4 subsequent variable gain amplifier (VGA);
5 a demodulator to generate an automatic gain control signal indicating a
6 power level of a desired received signal; and
7 a control network coupled to receive the gain control signal to optimally set
8 the gain of the LNA and VGA in a way that minimizes LNA gain while maintaining
9 the required signal quality for proper demodulation, wherein the control network
10 further comprises:

11 an input for receiving a received signal strength indicator (RSSI);
12 an input for receiving a quality indicator of the demodulated signal; and
13 logic to perform a mapping function wherein the gain of the LNA and VGA are
14 controlled optimally.

1 22. (original) The control network of claim 21, wherein the logic to perform the
2 mapping function operates to lower the gain of the LNA once the desired received signal
3 power exceeds a level where interfering signals are possible until a gain range of the
4 LNA is exhausted, at which point only the gain of the VGA is controlled.

1 23. (original) The control network of claim 21, wherein the logic to perform the
2 mapping function operates to lower the gain of the LNA and VGA together as the power
3 of the received signal increases above a sensitivity threshold until the gain range of the
4 LNA is exhausted, at which point only the gain of the VGA is controlled.

1 24. (original) The control network of claim 21, wherein the quality indicator is one
2 or more of a bit energy per noise spectral density (E_b/N_o), a bit error rate (BER), and a frame
3 erasure rate (FER).